BEFORE THE
FEDERAL COMMUNICATIONS COMMISSION
WASHINGTON, DC

In the Matter of **Expanding Flexible Use** **of the 3.7 to 4.2 GHz Band**	)	**GN Docket No 18-122**

To: The Commission

IN SUPPORT OF AIRLINES FOR AMERICA (A4A) EMERGENCY PETITION TO STAY INITIATION OF 5G OPERATIONS AT CERTAIN DESIGNATED AIRPORT LOCATIONS

The Regional Airline Association ("RAA")[1], pursuant to sections 1.41, 1.43 and 1.44 (e) of the Commission's Rules, 47 C.F.R. §§ 1.41, 1.43, and 1.44 (e), presents these comments supporting the petition[2] by Airlines for America ("A4A"). The A4A petition requests the Commission stay the initiation of new 3.7 GHz flexible licensee services, also known as the "C-Band", currently set to commence on January 5, 2022, in certain designated airport locations as described in their petition.

As you know, the Commission awarded the mobile wireless industry radio spectrum to operate 5G transmissions in the "C-Band", or 3.7-3.98 GHz, adjacent to the spectrum used by radar altimeters earlier this year, despite repeated warnings from aviation stakeholders, beginning in 2018, that radar altimeters must be protected from 5G interference. Unfortunately, the FCC rejected these important comments concerning the hazards to altimeters and aviation

[1] RAA Members are: Air Wisconsin Airlines, Champlain Enterprises CommutAir, Empire Airlines, Inc., Endeavor Air, Envoy Air, Inc., ExpressJet Airlines, GoJet Airlines, Horizon Air, Hyannis Air Service, Mesa Airlines, New England Airlines, Piedmont Airlines, PSA Airlines, Ravn Alaska, Republic Airways Holdings, Inc., SkyWest Airlines

[2] Emergency Petition for Stay -- Final.pdf (fcc.gov)

safety caused by 5G operations in adjacent frequency bands. As explained in the A4A's petition, altimeters are critical to the operation of every commercial flight in the United States. Radio altimeters are devices installed in aircraft, which determine the height of the aircraft above the terrain. Many types of aircraft utilize two or three co-located radio altimeters to provide the necessary integrity and availability requirements, which typically involve using all 200 MHz of the 4.2-4.4 GHz being used by a single aircraft. In addition, radio altimeter information feeds many other aircraft systems that provide safety alerting for other aircraft and terrain awareness and is also used by aircraft flight control systems to alter the handling qualities of aircraft in the vicinity of the runway on every takeoff, approach, and landing. Outputs of radio altimeters and the several certified aviation systems that rely upon radio altimeter input are critical for safe and efficient flight, particularly during periods of poor weather or low visibility.

Given the critical role of altimeters to other safety systems, air carriers and crewmembers likely will not be able to reliably use critical, required safety technologies that the industry spent decades developing and investing in to ensure safety of flight, such as Class A Terrain Awareness Warning Systems (TAWS), Enhanced Ground Proximity Warning Systems (EGPWS), Traffic Alert and Collision Avoidance Systems (TCAS), take-off guidance systems, flight control (control surface), tail strike prevention systems, etc. These integrated systems or functions are used in every flight operation, regardless of weather conditions. Any interference to the radio altimeters as a result of 5G deployment will introduce risk to the National Airspace System (NAS) and introduce new restrictions leading to frequent delays and cancelations of passenger flights; delayed air cargo shipments and other serious harms and disruptions once the C-Band 5G signals go live. Aviation stakeholders are committed to continuing to work with mobile wireless on finding solutions that allow for safe expansion of 5G, while protecting aviation from new risks as well as vast operational restrictions and disruption.

Along with the Department of Transportation (DOT), the Federal Aviation Administration (FAA), the federal agency principally charged by Congress to regulate aviation safety, has also expressed its concerns to the National Telecommunications and Information Administration ("NTIA"). In a letter dated December 1, 2020 to the Acting Director of the NTIA, the DOT and the FAA asked the NTIA to engage with the FCC to defer further action in the C-band proceeding, in advance of the scheduled December 8, 2020 auction of spectrum within the 3.7–4.2 GHz spectrum band (the 3.7 GHz band). As stated in the A4A's proceeding, we believe that the NTIA never advised the Commission of the concerns regarding interference to altimeters raised by the DOT and FAA.

In the course of debate about the operational impact associated with this auctioning of spectrum, we have heard numerous claims about other countries successful deployment absent issues. These claims have omitted key details and, as a result, are both incomplete and inaccurate. While other countries have indeed adopted rules to allow successful deployment, there are significant differences, which the FCC appears to be discounting. For example, in most cases, the allocated frequencies for 5G are further away from the radio frequency band used by radio altimeters and the maximum allowed power levels are lower than those contemplated in the US, in most cases by an order of magnitude. The following is a non-exhaustive sampling of key differences in spectrum sharing abroad compared to the contemplated impact in the US. In Japan, for instance, the power levels for 5G are just 4% of those permitted in the US and the small cell power levels are less than 1% than permitted in the US. This allows for far greater safety protection than is being contemplated in the US. Europe allows 5G utilization, but with a separation of an additional 100 MHz beyond what is provided in the US and at permitted power levels limited to about 75% of those permitted in the US. In Australia, 5G has substantial separation from the radio frequency band used by radio altimeters and the permitted power levels

are approximately 25% of those allowed in the US. In the UK, power levels are significantly lower in both the frequency ranges 3.4 -3.8 GHz (62% lower) and 3.805 – 4.195 GHz (99% lower). Moreover, the UK Civil Aviation Authority notes that "5G mobile base stations operating below 3.8 GHz, especially if they use active antenna systems … pose a viable interference threat to radio altimeters." Transport Canada worked with its spectrum regulator, Innovation, Science and Economic Development Canada (ISED) and placed restrictions on 5G deployment near 26 large airports where automated landing is authorized and further implemented a national tilt-down requirement on antennae to protect aircraft used in low altitude operations. In France, the Direction Générale de l'Aviation Civile (DGAC) and its spectrum regulator, Agence Nationale des Fréquences (ANFR) brought together stakeholders to develop a two-level action plan. In both countries, due to the mitigations put in place, 5G mobile wireless is expanding while safety of flight operations is protected. We believe such collaboration can and must happen in the US as well, but references to other countries' successful 5G rollout must not omit those key mitigations that made the rollout both successful and safe.

Operations enabled by radio altimeters allow safe approaches and landing in poor weather conditions or other periods of reduced visibility and low cloud ceilings. Airlines operate safely in these conditions today but, in the interest of safety, would be prohibited from operating in these conditions if unrestricted transmissions in the C-Band are permitted near airports. The potential for disruption to our aviation system – and the passengers that rely on that system to safely travel by air – has not been overstated. RAA agrees with A4A and other stakeholders that the Commission has not adequately explained why it did not consider the aforementioned concerns or address documented evidence of interference potential before proceeding. For these reasons, RAA requests that the Commission grant the stay of C-Band 5G activation, as requested by A4A.

RAA appreciates the Commission's consideration in this matter.

Respectfully submitted,

Faye Malarkey Black
President & CEO

Dated: January 3, 2022